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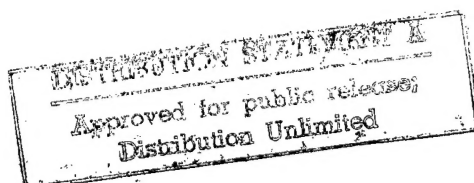
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JPRS Report

Science & Technology

***Central Eurasia:
Life Sciences***

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Science & Technology

Central Eurasia: Life Sciences

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Innovations of Ophthalmic Surgery Center Noted
937C0174G Moscow ROSSIYSKIYE VESTI in Russian
19 Dec 92 p 5

[Unattributed article: "Eye and Laser"]

[Text] Specialists at the MNKT [Moscow Scientific Technical Complex] for Eye Microsurgery replace surgical treatment of near-sightedness with a method for vaporizing the cornea using an ultraviolet laser. In this way a patient with near-sightedness of 3 to 16 diopters can have his vision completely restored without opening the eyeball, which minimizes the risk of infection.

As Svyatoslav Fyodorov, general director of the interdisciplinary complex, notes, scientists at MNTK have recently developed several new eye treatment technologies. They include one of the most important technologies of recent times—improving the artificial crystalline lens. It is as close as possible to a real lens in terms of its properties, and it is modified over time together with the entire eyeball.

Software for Selection of Asthma Therapy
937C0174H Moscow ROSSIYSKIYE VESTI in Russian
19 Dec 92 p 5

[Article by Anna Bakina: "How To Treat Asthma"]

[Text] Asthma is one of the most difficult diseases to treat. Moreover cases of sudden death are not uncommon. Viktor Solopov, head of the "Pulmonolog" Medical Center, sees its causes in increases in human adrenaline in the blood. Previously researchers ignored the fact that bronchodilators taken systemically interact in a particular way with the body's adrenaline system.

In order to come to this conclusion, Viktor Solopov studied the evolution of asthma and noticed that the human body experiences "waves" of positive and negative response to adrenaline. The pulmonary specialist believes that it is adrenaline that causes sudden death. In addition, the center's specialists have developed a computer program that makes it possible to select the most effective treatment for patients and predict the course and outcome of the disease, as well as the risk of sudden death. This computer system was created for doctors, but copies will be given also to patients with recommendations for treatment.

The lung specialists attending the presentation expressed the opinion that scientific discussion is needed to be completely convinced of this new medical trend.

Veterinary Fees, Pet Abandonment Rise*937C0174A Moscow ROSSIYSKIYE VESTI in Russian
25 Nov 92 p 4*

[Article by Oksana Dulskeya, staff correspondent:
"Biting Life: It Can Also Vary for Our Littler Brothers"]

[Text] While citizens plagued with diseases look forward to the changeover to paid medicine with nothing but anxiety, their domestic charges—four-footed and feathered—have already tasted its delights. In order to have a urine analysis on a cat or dog, for example, an owner now has to shell out fifty rubles. A full course of treatment for man's best friend will cost a minimum of one to two thousand rubles.

The corridors of ordinary veterinary centers became noticeably empty after prices went up (either the animals refused to get sick or their owners refused to treat them). But owners are eagerly becoming familiar with a new kind of medical care for their small friends, of which, by the way, people can only still dream: the care of a family doctor. The latter is becoming increasingly popular, gaining in importance and material wealth in no way incomparable to the income of a regional therapist who treats people. A clinic doctor gets an average of 5000 rubles, but according to the veterinarians' own data, a "feline" doctor in private practice can easily earn up to 30,000 rubles a month or more. Of course, not everyone can afford his services.

Apparently pet diseases depend a great deal on their owners' income. Some of them suffer stomach damage due to the continuous consumption of hard-to-digest bones; others suffer from metabolic disturbances because of overeating. But in general the indispositions of our four-footed neighbors are incredibly similar to those of man. Air pollution causes bronchitis; frequent colds torment delicate creatures from southern climes. By old age, cardiovascular ailments become extremely common because of inactivity.

Cars of various makes, including those with state licenses, line up at the entrance to one of the most prestigious (if there is such a concept in the world of animals) clinics in Moscow on Tsvetnoy Boulevard. Owners bring beloved pets who have fallen ill for appointments. In addition to a therapist, they are examined by an ophthalmologist, or a dentist sharpens a dulled fang or fits a crown on a fine show dog. The services include treatment by electropuncture—applying electricity to sensitive points on the body...

But don't rush to be jealous. We did agree that in this respect it's the same for animals as for people. But it's not necessarily the case that money will buy your charge high-quality care. I'll never forget the sorry look of a dog brought to the clinic with a foot swollen from a doctor's clumsy handling of a medicine dropper. Here we succeeded only by taking money, not by professionalism: There is a lack not only of a humane attitude toward animals, but also of basic knowledge. For example, the

largest veterinary training school, the Skryabin Academy, provides only general knowledge in this field. Doctors have to learn the science of treating small pets on the job.

The system of free state medicine was first breached in the world of our small friends. Personnel at state veterinary treatment facilities have not only switched to service for pay, but also dream of buying the clinic where they work. After all, this process could make sense in a society where the most expensive and rarest breeds of four-footed pets are in increasing demand. Indeed, the owner of a Yorkshire terrier that fits in the palm of your hand and costs 50,000 rubles or the master of a huge, powerful mastiff valued at 300,000 rubles has to find the money to treat them, too.

But there are animals who are strangers to the celebration of life. In one year in Moscow alone the sanitary services catch up to 40,000 (!) stray dogs and cats. And the number is increasing, since, according to veterinarians' data, they are falling behind. This calls to mind a television program from France, where, it was claimed, there are no stray animals. The middle class there can't afford store-bought "live goods", and there is always someone to shelter animals from the street. Here only lonely animal lovers sacrificing their apartments, which sometimes house real foster-children, take in "ownerless" unfortunates.

If our small friends could speak, they would say that in a prosperous human society there are no homeless pets.

Laboratory Studies Arctic Health*937C0174B Moscow ROSSIYSKIYE VESTI in Russian
4 Nov 92 p 4*

[Interview with Aleksandr Vladimirovich Suslov, head of Razvitiye Severa Scientific Production Association, chairman of Northern Division of Russian Academy of Sciences Psychologists' Society, by Nina Aleksandrova, staff correspondent, dateline Ukhta: "Above the Arctic Circle—It's a Test of Strength"; first three paragraphs are source introduction]

[Text] Above the Arctic Circle, from Murmansk to Ukhta, hundreds of thousands of people willingly expose themselves to the whims of the northern climate. Statistics show that they develop illnesses 8-10 years earlier than do inhabitants of middle latitudes.

At one time a laboratory founded by a group of psychologist-doctors at the "Severgazprom" Concern in Ukhta studied the problems of "northern" health care. Now the laboratory is called the "Razvitiye Severa" Scientific Production Center.

Our correspondent asked Aleksandr Suslov, the center's head and chairman of the Northern Division of the Russian Academy of Sciences' Psychologists' Society, to detail its activities.

[Aleksandrova] Aleksandr Vladimirovich, what is it that undermines people's health in the North?

[Suslov] Their main enemy is the overall climatic "imbalance" of the North. Atmospheric pressure, temperature, humidity, the intensity of the Earth's geomagnetic field can change drastically over a few hours. Plus increased cosmic radiation at high latitudes and lack of vitamins and trace elements. Hence people, especially in those who come from southern regions, feel as if they are at high altitude: loss of strength, drowsiness, 15-20 percent lower capacity for work.

The body gradually acclimatizes, of course, but its adaptive reserves aren't infinite. One's immunity is exhausted—diseases develop. Illnesses not detected in time progress and become incurable: a person essentially becomes an invalid.

[Aleksandrova] How can one avoid this fatal chain of events?

[Suslov] Break it at the very beginning, intervene at the stage when the disease process is still reversible. To do this requires that the entire North be served by a serious disease prevention system. Of course, the doctors can't do it alone. Our center is helping them: It collects diagnostic information and enters it into a computer. We used western models to develop several tests aimed at the work-related illnesses, general complaints, habits, life style, and working conditions of inhabitants of particular northern regions. And, of course, recommendations to patients.

[Aleksandrova] Your laboratory is exploring in the most varied areas. It has many computer developments in so-called engineering psychology. Tell us more about what this is.

[Suslov] The entire civilized world has long paid a great deal of attention to the psychology of work, the psychology of production processes. Any manufacturing activity gives a person a triumvirate of contacts: first, with the environment; second, with equipment; and third, with others like him. A worker's overall labor productivity and feeling of well being depend on how harmonious these relationships are. The situation requires monitoring primarily in those areas where working conditions are harsher and it is more difficult for people to adjust to production processes and to one another. In the gas industry alone, the annual personnel turnover is more than 100,000 people.

Not one western company is solving the personnel problem without a psychology specialist this field. Here the traditional method of screening personnel involves only reviewing application data... No one is concerned with a person's psychophysiological features or his creative capacities. Thus the sad result: In Russia 85-90 percent of workers, including those in northern production branches, do not meet the requirements of their profession.

Of course, the reasons for this phenomenon are primarily social. But we are approaching this problem from our own direction: we have created a computerized testing system for those who work in extreme conditions and are trying to help them select a profession. A person's unrealized potential should not be allowed to stagnate, just as he should not feel compelled to do something against his nature, ignoring his own "margin of strength."

Novel Dental Implants

937C0174C Moscow NEZAVISIMAYA GAZETA
in Russian 12 Dec 92 p 6

[Article picked up from Severo-Zapad Information Agency: "Russian Teeth Are Stronger and Cheaper"]

[Text] Several New York dental clinics have expressed the desire to acquire the rights to produce dental implants made of sapphire dust. The manufacturing technology was developed by specialists at the NYeOS Company in St. Petersburg. The dental implants were successfully tested at a Petersburg military medical academy. The implants are close to diamond in terms of strength. They are absolutely inert and are not rejected by bone tissue. They cost 1,000-1,500 rubles when made individually, but the price will drop significantly if they are mass produced. Western products are not as strong and require a more complex insertion procedure. According to the NYeOS director, the novelty has yet to find local buyers.

New Treatment for Arteriosclerosis Obliterans

937C0174D Moscow IZVESTIYA in Russian
17 Nov 92 Morning p 3

[Article by Lidiya Ivchenko, staff correspondent: "Patients Are Ready To Help the Doctor. What about the Authorities?"; first paragraph is source introduction]

[Text] Statistics say that there are 1,700 operations for arterial diseases of the lower extremities for every million inhabitants in Europe. In the United States the figure is 2,700. In the former Soviet Union 23,000 operations are done every year just on patients with endarteritis obliterans, atherosclerosis obliterans, endoarthrititis, and other ailments related to vascular damage.

According to M. Ramazanov, professor at the Dagestan Medical Institute, every month 5-10 patients have fingers, toes, and feet amputated in Makhachkal. And the number of cases of these ailments is rising yearly. There are no radical treatment methods, and even operations that restore damaged circulation do not guarantee a complete cure. "We see people who have gone under the scalpel several times. There is no place else to cut," says Magomed Ramazanovich, "and those patients for whom an operation in contraindicated have no one to turn to except us..." Ramazanov hardly considers this method

radical. It is a palliative, but it saves many patients, since it enables some to postpone the operation for several years and some to avoid it.

The effect of Ramazanov's treatment is related to the creation of a shock wave of blood in the legs which expands alternate blood vessels, the so-called collaterals. Regular exercise develops this collateral network, and the body is able somehow to manage, to do without the malfunctioning primary blood vessels. Since the primary vessels are not doing their job, leaving tissues to "starve," the extremities die, which ultimately necessitates an operation. But if the aorta, the iliac and femoral arteries are constricted regularly at specific intervals, depriving parts of the body of blood and forcing them to starve even more, they develop so-called vasoactive products, enzymes which promote the expansion of peripheral blood vessels. In severe cases, when an operation seemed unavoidable, it has been possible to postpone it for 5-7 years.

Professor Ramazanov does not consider the treatment he has developed anything super-original, although he has author's certificates for the invention—an innovation is always based on something earlier. Even the great Pirogov pointed out the compensatory capabilities of collaterals.

Ramazanov developed his procedure and, together with his colleagues, designed a device to pinch the arteries, as well as a "multistep couch" on which the method is used on patients placed at different angles—when the weight of the blood itself helped expand the vessels.

Ramazanov's method is known in many parts of Russia, and people come for treatment from the former union republics and abroad. The professor doesn't need the scientific rehabilitation center for vanity or the desire to become a manager. His goal is not monopoly. He eagerly shares his experience—his development is being used at Rostov-na-Donu and in certain hospitals in Dagestan and Checheno-Ingushetka. But the method has not yet become common practice - - what can you do with 13 beds? "We have to train doctors, but it's impossible," says Ramazanov, "Although there are lots of requests from my colleagues. And this treatment sometimes also produces interesting side results. For example, we've cured impotence and infertility, and epileptic seizures frequently stop or become much less frequent. In one patient vision was restored to an eye that had atrophied at some time. All this has to be researched, understood, scientifically substantiated..."

No one is standing in Ramazanov's way, but then no one is helping either. As early as 1988, V. Savelyev, Academician of the RAMN [Russian Academy of Medical Sciences] and chief surgeon of the RSFSR Ministry of Health, wrote the Minister of Health in Dagestan that he believes it worthwhile to open a center to treat vascular ailments of the lower extremities there. Another renowned surgeon, A. Pokrovskiy, corresponding member of the RAMN (once Ramazanov's doctoral

dissertation advisor) is also convinced that the center is needed, as is the surgery. "Nowhere in Dagestan except for Adygen is there one center operating on vascular patients..." Ramazanov agrees with him entirely. Prof. A. Golubev, dean of the Dagestan Medical Institute, mentions this in his petition to O. Rutkovskiy, head of the RSFSR Ministry of Health MA, "The proposed hospital will operate on patients for whom conservative treatment is unsuitable."

Requests and petitions on various levels still haven't produced results. Many of Ramazanov's patients write to ask how they can help: If it's a matter of money, they are ready; just tell them the account number... The doctor has had negotiations with businessmen. Others are ready to finance the center, but they are counting on income from paid care. Ramazanov doesn't want to resort to that.

The only hope lies with patients and disinterested sponsors.

Fertility Clinic Opens in Donetsk

937C0174E Moscow KOMSOMOLSKAYA PRAVDA
in Russian 29 Oct 92 p 1

[Excerpts from article by V. Nosyak, staff correspondent, dateline Donetsk: "Test Tube as Detonator of Demographic Explosion"]

[Excerpts] In 1978 the press was bursting with scandal: A child was conceived in a test tube at some western clinic. There began a debate which continues today. Commentaries such as "blasphemy industry" just recently disappeared from the columns of our newspapers. This discovery affected us here like nowhere else. If only because our women who have not given birth keep turning sleepers, wearing themselves out in shops, moaning in antediluvian gynecological offices and... wanting children.

It took a group of obsessed doctors to open the Donetsk Bioreproduction Center (apparently the fifth in the CIS). As it turned out, every patient had a different problem: legal, ethical, and material. A couple with no problems was selected first: legally married, with money to pay (it now costs 18,000 Ukrainian coupons), both without prejudices. They only had to wait a little for their happy moment. [passage omitted]

I'm not saying that a program to rescue motherhood developed and implemented by individual humanitarians, either here or in Kharkov or in Moscow or St. Petersburg, doesn't have the desired state support. In Donetsk, for example, the program's only sponsor is the "Don" NPO [Scientific Production Association].

I wouldn't be surprised if, after temporary indecision, the first proponent of scientific salvation and multiplication of the human race would be the church rather than the government. Although the discussion of this topic has still not ended, orthodoxy has already

answered the main question: No one can have the absolute right to deprive a woman of the opportunity to become a mother.

Artificial Insemination Center in Sochi

937C0174F Moscow NEZAVISIMAYA GAZETA
in Russian 3 Oct 92 p 6

[Article by Dmitriy Yermakov, staff correspondent, under the rubric "Medicine": "American Donors Are Helping Our Women. Sochi's Gynecologists Think It's More Reliable That Way"; first paragraph is source introduction]

[Text] In August, NEZAVISIMAYA GAZETA reported that a shipment of donor sperm would be delivered to Russia from the United States. Our correspondent continues this subject.

We began doing the artificial insemination procedure in this country not long ago. In England, for example, the first test-tube baby was born in 1978 and here, in 1987. One treatment center where these procedures are done is in Sochi. It is called the Russian-American Infertility Treatment Center. A major gynecologists' seminar was held there recently.

Prof. Yuri Verlinsky, the renowned geneticist and gynecologist and doctor at the Chicago Reproduction and Genetics Institute flew specially to Sochi. He told his Russian colleagues many interesting things about worldwide artificial insemination experience. The American professor made a proposal—to set up a sperm bank at the center in Sochi. The donor sperm would be brought from overseas, from Chicago.

There were immediately many questions: Why from Chicago? Why American? Are Russian sperm inferior? "In America we examine each potential donor for at least six months—the AIDS virus can manifest itself even after half a year. We have to do a genetic study and identify every imaginable disease in donors," explained Yuri Verlinsky. "In America we can already fill a patient's order for a boy or girl." "We still aren't that advanced," said David Bronshteyn, chief doctor at the Sochi Center.

Regarding the problem of female infertility, Prof. Verlinsky said that infertility in women in the United States and CIS has entirely different causes.

"In the CIS the most common method for controlling unwanted pregnancy is abortion, and with an abortion there are inflammatory processes and, ultimately, infertility" explained Prof. Verlinsky. "But in America the cause of infertility is contraception—hormonal contraceptive medicines result in functional disturbances, but this is not the only reason. American women have begun to give birth later. They are busy with careers. Moreover, this may seem strange, but a too-healthy lifestyle can cause infertility. Out of excessive concern about their figures at an early age they manage to ruin their health.

If a woman runs and stays permanently on a diet, she disrupts her entire hormonal cycle, and she doesn't have enough fat to produce hormones. Therefore she doesn't become pregnant."

The doctors in Sochi witnessed a demonstration artificial insemination procedure. The process lasts only a few seconds—a disposable catheter is used to introduce fertilized egg cells into the woman's body. The procedure is absolutely painless and involves no bleeding. In the civilized world artificial insemination is considered routine. For example, in Chicago there are seven such centers—for 7 million residents. We are setting up new centers in several cities, but we haven't yet seen any positive results. Because we've already managed to frighten off potential patients with high prices.

The Sochi Center charges 15,000 rubles for the procedure. In Chicago it costs \$5,000-7,000. So it's cheaper here. But everything else is just as in Chicago. Equipment, instruments, specialists. By the way, just the disposable instruments for one patient at the Sochi center cost \$225.

American professor Yuri Verlinsky was quite satisfied with the results obtained by the local doctors: 27 percent of the implanted pregnancies took. This is entirely in line with world standards, and even higher than in some foreign clinics.

Creation of Moscow Pharmaceutical Center

937C0174I Moscow ROSSIYSKIYE VESTI in Russian
19 Dec 92 p 5

[Article by Galina Sugak: "Like in a Drugstore..."]

[Text] The Moscow government has attempted to improve the situation with medicines and drugs in the capital. The Moscow Municipal Pharmaceutical Center has been established by a decree from the premier.

In addition to the traditional goal, meeting the needs of the public and treatment-prevention centers for drugs, the center's goals include predicting, development and expert evaluation of the efficacy and safety of new domestically produced medicines, hastening their introduction into health care practice, and quality control of drugs in use.

The center will also seek to identify unapproved clinical drug trials and consult with organizations and private citizens on the drug development and testing.

Infrared Sterilizer

937C0182A St. Petersburg ST. PETERBURGSKIE
VEDOMOSTI in Russian 29 Aug 92 p 3

[Article by V. Vishnevetskiy: "'Feruza': Alliance of Science and Entrepreneurship"]

[Text] This dramatic story began almost four years ago.

A routine medical checkup of the employees was underway at the Physics-Sun Institute, in Tashkent, the institute which is well known outside Central Asia for having the largest solar furnace in the world. The employees were given shots against hepatitis. Disposable syringes were not available—and that caused a tragedy: A technician died from an infection she received with the injection.

The absurd death of a young girl by the name of Feruza shocked Rustam Rakhimov, a staffer of that institute. He became determined to develop a weapon against all infections—a universal sterilizer. After a while he developed a method which could destroy, within ten minutes, not only hepatitis and AIDS viruses, but also the foot-and-mouth disease virus that can survive even exposure to fire.

The scientist manufactured an infrared emitter from special ceramics he made in the famous solar furnace. Using huge mirrors that focus solar energy at a single point, the furnace can generate temperatures as high as 4,000°. This was exactly what Rakhimov needed to produce ceramics with required properties.

Then he found out that infrared ceramic emitters could be used not only to sterilize medical tools but also to dry foodstuffs. Dried foods could be soaked for a short time in cold or warm water, after which they recovered their original qualities, i.e., color, taste, aroma, and even appearance. Mushrooms, berries, tubers and all kinds of vegetables were tested.

That was really a success. However, Rakhimov's experiments elicited mixed responses from the scientific community. Only concrete results of the use of sterilizers and driers would confirm that his approach was correct and prove that infrared radiation could be efficiently applied in novel areas.

The research institute was unable to set up the manufacture of advanced technologies by itself. Attempts to do this at several Uzbekistan enterprises had failed. Large-scale production of unique medical and agricultural equipment, which has no analogs in other countries, required a powerful industrial company.

Bolshevik, a St. Petersburg plant, which reclaimed its original name Obukhovskiy Plant, offered its services. The military giant had begun to lose stable military contracts, and one of its specialists, who had heard about Tashkent developments, made a proposal to start prospective "peaceful" production.

Obviously, it did not make sense to convert the entire huge plant and start the production of a new technology. The assignment within the company to make sterilizers and driers its main product was given to a small business.

It took one year for the Feruza company—the name the small business had taken—to complete the design work and laboratory testing and to begin the production of sterilizers and driers.

Having established three research laboratories within a very short time period, Feruza invested nearly three million rubles in research and development alone. Investigators from the Mechanics Institute and Sanitary-Hygiene Institute contributed to the development of the drying process.

Today Feruza managers do not regret the large amount of money they spent last year: Feruza-farmer [Feruza-farmer] and Feruza-Vostok [Feruza-East] driers passed bench tests with high marks.

Dried fruit and vegetables also were carefully evaluated. Here is an excerpt from the formal statement made by the Sanitary-Hygiene Institute: "All samples presented have high organoleptic qualities (appearance, flavor, color, etc.). Their content of ascorbic acid (vitamin C) and carotene remains unchanged after treatment." In addition, microorganisms, which are the major cause of food decomposition, die 100,000 times faster due to infrared drying.

Feruza is producing driers of two types: for private owners with a capacity of 5-7 kg and for large farms with a capacity 10 times greater. The cost of these driers is one third that of driers produced by competitors. The drying time is 3-6 hours. The power requirements of these units are 10 times less and their performance is 40 percent higher than those of heat driers.

In addition to the Feruza company, several other producers are making attempts to manufacture driers of the above type: however, only Obukhovskiy Plant has the entire package of test certificates and sanitary-epidemiological station permits for the dryers' production and distribution.

Very soon Feruza will be ready to initiate the production of dried vegetables. It will be supported by a consumer's cooperative in the city of Slantsy and by a small business named Bis.

Clearly, one small business will not be able to implement all the plans and provide Russian vegetable producers with the required quantities of driers. This is why in 1993 Obukhovskiy Plant is planning to start a large-scale production of driers and sterilizers based on the Feruza technologies. Not long ago the government provided the plant with a substantial credit line. Commercial structures have also realized the potential of infrared drying and sterilization procedures. For example, the stock company Vityaz has already invested three million rubles in the Feruza development.

A special item in the government ordinance envisages further increase in the development of sterilizers, 90,000 of which are needed in Russia today.

In Uzbekistan and Kazakhstan, Feruza sterilizers are already being used. A grave epidemiological situation in those states made it necessary to simplify certification procedures. However, in Moscow, certification tests are only nearing completion. Their final step will be a permit

issued by the Russian Ministry of Health for large-scale production and distribution of sterilizers.

Wide application of infrared sterilizers is efficient not only in terms of time (they are 8-9 times faster than modern autoclaves) but they also make disposable syringes totally unnecessary.

Infrared sterilizers have another important advantage—they allow the disinfection temperature to be decreased. At present Feruza laboratories and Physics-Sun laboratories are engaged in scientific work to reduce the sterilization temperature to 120° or lower. R. Rakhimov maintains that within a few years it will be very realistic to reach temperatures allowing blood sterilization. If this goal is attained, it will be, in the opinion of experts, one of the greatest achievements of mankind.

R. Rakhimov in Tashkent and Feruza in St. Petersburg are continuing their efforts in this direction. Being a fairly rare—at least today—alliance of science and entrepreneurship, they have shown that it is very efficient and cost-effective to develop novel and advanced technologies by using military industry capabilities.

Converted Enterprises Exhibit Products

937C0182B Moscow KURANTY in Russian
20 Oct 92 p 2

[Article by Vladimir Gurvich: "We Can If We Want"]

[Text] The All-Union Research and Testing Institute of Medical Technology housed the first commercial exhibit "Moscow-92." The exhibit hosted several dozen companies from the city and district of Moscow, as well as from 14 other cities of the Russian Federation. It is important to note that 60 percent of the approximately 400 exhibits present were produced by military-industrial complex companies in the process of conversion.

The basic objective of the exhibit was to demonstrate the potential for Russian industry to manufacture modern high-quality medical equipment and assist in-patient and out-patient hospitals in acquiring it.

The exhibit aroused great interest, with representatives of all republics of the former Soviet Union visiting. Foreign companies also showed interest in the exhibit: Several contracts were signed with companies from Italy, Libya, and Turkey.

On the whole, the exhibit achieved a serious commercial success: Many agreements and contracts were signed. The largest contract was to deliver five altitude chambers at a cost of one million rubles each.

It was decided to have such an exhibit on an annual basis.

Novel Laser Blood Drawing Device

937C0182C Moscow KOMMERSANT-DAILY
in Russian 29 Jan 93 p 15

[Article by Vitaliy Romanov: "Absolute Sterility in Drawing of Blood Is Guaranteed"; first paragraph is source introduction]

[Text] Yesterday the Engineering Center for New Technologies of the Institute for Nuclear Research, Russian Academy of Sciences, delivered to Russian hospitals the first shipment of a novel device—a laser perforator ERMED-303—which makes AIDS- virus contamination of blood totally impossible.

As Valery Polushkin, Director of the Center, told a KOMMERSANT-DAILY correspondent that the new instrument, which has no analogs in other countries, has been designed and developed in cooperation with the Leasing Research and Development Center "Lasers and Equipment." The device makes a skin puncture by means of a narrow targeted laser beam. This contact-free method not only provides absolute sterility but also makes the procedure virtually painless.

Besides, the perforator ERMED-303 has the capability to control the level of laser radiation. This allows punctures of varying depth to be made—in an adult it should be greater than in a child.

The new instrument weighs only 3.5 kg and is simple in use. The instrument has successfully passed clinical trials in leading hospitals of Russia. The Russian Ministry of Health has issued a permit for its use. At present the Center is capable of producing approximately 60 instruments a month for 120,000 to 150,000 rubles each.

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Environmentally Caused Disease in Kazakhstan

937C0182D Alma-Ata KAZAKHSTANSKAYA
PRAVDA in Russian 28 Nov 92 p 4

[Article by Dr Med Sci G. Andreev, Cand Med Sci A. Ibadildin, and N. Kadyrbayev, department head at the Skoraya Pomoshch Hospital: "Unique Advances Are Not in Demand"]

[Text] We were forced to appeal to your newspaper because of the miserable situation of health care in general and in particular because of our small department for portal hypertension treatment (the only one in the Republic).

This severe disease is most frequently caused by chronic liver pathologies, i.e., hepatitis or cirrhosis.

In Kazakhstan, this is a regional problem caused by social and environmental disorders, leading to a progressively increasing morbidity rate of virus hepatitis. The problem is associated with hazardous effects upon the environment and man of uncontrolled activities of industrial and agricultural complexes, irrational melioration, and wide use of pesticides.

According to Professor B. Aitbenbetov, Chief Internist of the Republican Ministry of Health, liver pathologies have been diagnosed in 38 percent of rice breeders of the Kzyl-Orda district, which is recognized as an environmentally disastrous area. The pathology prevalence is closely correlated with the exposure to pesticides. However, this grave situation can be seen not only in the areas officially recognized as environmentally dangerous. It appears that, when the areas of ecological disaster were identified, the lesser of two evils was chosen because there is virtually not a single place in the Republic that can be viewed as environmentally acceptable. Is there any reason to be surprised by a wide occurrence of stomach, intestine, liver, and kidney diseases?

The liver is the main laboratory of the human body, which performs decontamination of toxic products, discharged by the gastrointestinal tract, and synthesis of vitally important compounds, such as proteins. Because of its unique vascular system, the liver plays an important part in the regulation of blood cell composition and blood circulation. The liver takes upon itself the major blow of excessive quantities of toxic compounds that lead to the death of hepatic cells and liver dysfunction. The morbidity rate of virus hepatitis is steadily growing in the Republic: Within five years it has increased 1.3 times; the rate is especially high in Yuzhno-Kazakhstan, Dzhambul, Taldykorgan, Turgai, and Kzyl-Orda districts, as well as in the city and district of Alma-Ata.

In the city of Alma-Ata, nearly 23 percent of virus B hepatitis patients and over 5 percent of chronic hepatitis patients are discharged from the hospitals, when their treatment has not yet been completed and they show residual symptoms of the disease. The lack of adequate follow-up of hepatitis patients (they are followed up for 12 months, whereas chronic hepatitis and cirrhosis develop 3 to 5 years after the onset of the disease) as well as the lack of good statistics have led to the situation in which patients with well advanced complications (esophageal and intestinal bleeding, ascites, or abdominal dropsy) apply for medical help. Their treatment is therefore more expensive, prolonged and less effective.

On the average, the pre-operative treatment of a bleeding patient takes 45 days, an ascitic patient—55 days, a patient with jaundice—60 days, whereas the therapy of an uncomplicated case takes 40 days.

In terms of money, the average cost of pre-operative preparation is 40,000 to 50,000 rubles and that of post-operative care is 20,000 to 30,000 rubles per patient, not to mention surgery costs as such.

Surgery is very complicated and often causes massive blood loss; surgical intervention can be performed by highly qualified specialists having access to modern equipment, tools, and drugs, which makes it very costly.

Among the factors responsible for the maternal mortality rate during delivery, chronic liver pathologies and portal hypertension are in the second place after cardiological

pathologies in the Republic as a whole and in the first place in the Yuzhno-Kazakhstan district.

According to tentative estimates, 213 per 100,000 of the population need surgical treatment related to portal hypertension, 84 percent of which are in the 25-50 years age group.

The only hospital in the Republic that can treat such cases is the Thoracic (Portal Hypertension) Department of the Emergency Medical Aid Hospital, which was established eleven years ago. Since April 1990, it has become the Republican Center for Portal Hypertension Surgery.

This department has developed novel methods and modified current methods used for the diagnosis and treatment of the above grave disease.

However, the city health care division was unable to support 40 beds and their number was reduced to 25. At present the Department provides free health care only to the residents of the city of Alma-Ata and charge residents of other areas of the Republic.

Because of the lack of finances to purchase drugs, the pre-operative conservative therapy had to be reduced; as a result, the lethality rate during the first six months of 1992 increased for the first time within the last seven years. This has raised the issue of providing only paid health care by the Department.

Patients with chronic hepatitis and cirrhosis are young people who have become invalids through the fault of our society and who have no money to afford extended therapy.

This is the reason why we are calling upon you, managers of industrial and agricultural complexes, public funds, and cooperative associations, upon you, private entrepreneurs, upon you, our dear compatriots, all of you who still have compassion and mercy—help your sick fellow-citizens; the only place, where they can find qualified medical aid is the Thoracic (Portal Hypertension) Department. You will invest your money into a charitable and humane business.

We are prepared to accept any type of cooperation, e.g., small business, lease, sponsorship, etc.

Our unique developments, lofty feelings of duty, and the high professional level of doctors, paramedics and other staffers cannot be used in full simply because we have to work in absolutely impossible conditions: 25 beds are placed in four rooms. Had we modified the hospital, we would be able to provide medical aid for money—this approach could help resolve problems for both the hospital and the investor. In addition, we would be able to provide paid training of internists, surgeons, and nurses from various areas of the Republic.

Also, we have prepared a book summarizing the experience accumulated by the Department. In other words, we have something to offer to those who are ready to make their investments.

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